

# Explaining Institutional Change: Policy Areas, Outside Options, and the Bretton Woods Institutions

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*I propose and test a theoretical framework that explains institutional change in international relations. Like firms in markets, international institutions are affected by the underlying characteristics of their policy areas. Some policy areas are prone to produce institutions facing relatively little competition, limiting the outside options of member states and impeding redistributive change. In comparison, institutions facing severe competition will quickly reflect changes in underlying state interests and power. To test the theory empirically, I exploit common features of the Bretton Woods institutions—the International Monetary Fund and World Bank—to isolate the effect of variation in policy area characteristics. The empirical tests show that, despite having identical membership and internal rules, bargaining outcomes in the Bretton Woods institutions have diverged sharply and in accordance with the theory.*

Once established, international institutions often persist for a long time. As member states are added and institutional functions shift, initial agreements governing the allocation of benefits and decision-making rights often come under criticism for being incongruous with new realities. The structure of the United Nations (UN) Security Council is often singled out by nonpermanent members as poorly reflecting the new world order (Voeten 2007). Similar criticisms have been leveled at major economic institutions, such as the International Monetary Fund (IMF) and World Bank.<sup>1</sup>

This article seeks to explain variations in *distributional* change across institutional settings. The dependent variable is the propensity for decision-making shares and influence over outcomes to be redistributed among institutional members according to underlying shifts in interests and capabilities. For a given shift in underlying

factors, a distributionally rigid institution will exhibit comparatively little change compared to a distributionally flexible institution.

Much of the existing literature has approached the question of institutional change in dichotomous terms: Do institutions respond flexibly to reflect underlying interests and power, or do they resist change? Early work on institutions split sharply along paradigmatic lines, with neorealists arguing, on the one hand, that institutions are epiphenomenal to state preferences and therefore malleable to underlying power shifts (e.g., Glennon 2003; Gruber 2000; Oatley and Nabors 1998; Mearsheimer 1994/1995) and neoliberals, on the other hand, asserting that institutions exert an independent effect and oftentimes persist despite underlying changes (e.g., Gilpin 1981; Keohane 1984; Krasner 1976). This dichotomous debate left the literature largely devoid of generalizable

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<sup>1</sup>Among others, see Horsefield (1969), Garritsen de Vries (1987, 511–43), Rapkin, Elston, and Strand (1997), Boughton (2001, 849–75), and Blomberg and Broz (2007).

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theories about *variations* in institutional stability and change (Powell 1994; Martin 1997).<sup>2</sup>

More recently, institutional change has emerged as a critical subject of contention among historical institutionalist and rationalist approaches toward institutions. Historical institutionalists emphasize the seeming inability of rationalist theories to explain institutional persistence in making the case for greater attention to historical antecedents and critical junctures (Pierson 1996, 2000).<sup>3</sup> However, historical institutionalism has not offered a compelling theoretical framework to account for institutional change.<sup>4</sup> In recent work, Jupille, Mattli, and Snidal (2013) argue that bounded rationality offers a solution: Policy makers tend to satisfice by opting for familiar solutions, sequentially proceeding from the “use” of existing institutions to “selection, change, and creation,” depending on the demonstrated inadequacies of existing arrangements.

This article offers an alternative solution to the conundrum of institutional change and persistence. I examine institutional change as a redistributive bargaining problem. The theory incorporates network effects—a key concept from the economic literature of path dependence—as a variable within a rationalist theory of institutional change. Rather than treating “use, select, change, and create” as a sequential choice of boundedly rational actors, I examine the interaction of these choices: How does the credibility of alternative institutions affect the propensity for existing institutions to persist or change? The theory illustrates how the stubborn persistence of existing institutional arrangements does not necessarily reflect bounded rationality: Status quo bias can also arise when acting outside existing frameworks is unattractive for states seeking change. The theory fills a lacuna within the rationalist tradition toward international cooperation, which has focused on how various features of issue areas affect patterns and forms of cooperation, while largely neglecting how these factors might influence institutional change.<sup>5</sup> In addition, the theory generates

testable, empirical predictions not foreshadowed by any existing theories of institutions.

The central argument of this article is that variation in institutional change can be explained by examining policy area characteristics. Specifically, while some policy problems can be resolved diffusely, others are more effectively managed through universality and concentration of functions. Hence, policy areas vary in their propensity for competition, both among institutions and from bilateral, unilateral, and private sources. In turn, institutions differ in the attractiveness of available outside options for members. Where outside options are attractive, members can utilize the threat of exit to push for distributional change in line with their actual capabilities. In policy areas where outside options are unavailable or unattractive, such leverage is difficult to bring to bear. Hence, competition is associated with greater institutional flexibility, whereas concentration tends to produce path dependence.

I will test my theory empirically by taking advantage of a quasi-experiment offered by unique features of the Bretton Woods institutions—the IMF and World Bank. These two institutions operate in different policy areas, but they are characterized by identical *de jure* rules governing changes in voting shares and essentially identical membership.<sup>6</sup> This allows us to observe bargaining outcomes featuring the same set of actors simultaneously operating under identical rules, but in institutional settings featuring distinct outside options. The results clearly show that bargaining outcomes across the IMF and World Bank have diverged in a manner consistent with the theoretical predictions: World Bank voting shares are closely related to contemporaneous levels and changes in shares of world gross domestic product (GDP); in contrast, IMF voting shares are primarily related to share distributions in earlier time periods and exhibit little change in response to shifts in the distribution of world GDP and other economic variables.

## Theory: The Effect of Policy Areas and Outside Options on Institutions

In this section, I will present a theoretical framework that explains variations in distributive institutional change based on policy area characteristics. I will begin by

Milner and Rosendorff (2001), Magee and Morelli (2003), and Alter and Meunier (2009)

<sup>6</sup>As I discuss below, the only exceptions are a handful of minor island states.

<sup>2</sup>Some existing work does consider other aspects of institutional change, such as institutional death and the deepening of cooperation over time. See, among others, Haas (1958), Lindberg (1963), Garrett and Weingast (1993), Kahler (1995, 1999), Shanks, Jacobson, and Kaplan (1996), Moravcsik (1999), Ikenberry (2000), and Greif and Laitin (2004).

<sup>3</sup>For example, Jupille, Mattli, and Snidal (2013) argue that an important limitation of rationalist approaches of institutions is that they predict “relatively frictionless movement from new problem to optimal institutional solution” (15).

<sup>4</sup>See Peters, Pierre, and King (2005, 1296).

<sup>5</sup>See, for example, Oye (1986), Martin (1992), Abbott and Snidal (1998), Roberts (1999), Koremenos, Lipson, and Snidal (2001),

elaborating how network effects and barriers to entry affect patterns of cooperation and the availability of outside options for institutional members. I will then explain how the availability of outside options determines bargaining outcomes and the tendency for institutions to change.

### Policy Area Characteristics and Outside Options

Since the 19th century, economists going back to Cournot have examined how market characteristics impact firm behavior, leading to a fruitful literature on industrial organization.<sup>7</sup> For example, scale economies tend to create natural monopolies,<sup>8</sup> and holdup problems facilitate vertical integration.<sup>9</sup> The basic premise of my theory is that political institutions are analogously and generalizably affected by characteristics of their policy areas. In particular, *network effects* tend to encourage universalistic cooperation within a single institution, and *barriers to entry* restrict the scope for competing arrangements.

Network effects arise when the marginal utility of joining an activity increases with the total number of participating actors (Katz and Shapiro 1985; Liebowitz and Margolis 1995; Milner 2006).<sup>10</sup> International policy areas exhibit varying degrees of network effects. On the lower end, military alliances do not necessarily benefit from limitless growth due to problems such as free riding, force integration, and commonality of strategic interests (Sandler 1993). On the higher end, agreement on international standards such as the technical protocols for Internet domain names benefits greatly from universal cooperation—a country attempting to implement an alternative scheme unilaterally would find itself cut off from the rest of the Internet (Drezner 2004). However, other aspects of the Internet, such as content regulation, do not feature the same network effects and are handled more diffusely (Drezner 2007, 95–101). The potential for cross-national spillover also affects potential network effects—financial contagion often spreads unpredictably and globally, necessitating greater participa-

tion and universal cooperation, whereas similar effects may be less salient in areas such as foreign direct investment and security cooperation. Legitimacy stemming from universality also represents a type of network effect, in which greater participation makes the cooperative venture more valuable for all participants. High network effects provide incentives for states to cooperate through a single, universalistic international institution. Once such institutions are formed, the costs of pursuing alternative forms of cooperation are high, and states face strong incentives to remain within the existing framework.

Second, barriers to entry represent hindrances to alternative forms of cooperation.<sup>11</sup> Scholars of international relations have often pointed to high initial costs of institution building (Keohane 1984). However, some institutions are more costly to build than others. Institutions requiring highly specialized legal, scientific, or policy-specific expertise and bureaucratic formalization are more difficult to replicate than informal institutions or institutions requiring only administrative functions, such as the G8. By nature, some policy areas involve the sharing of sensitive information that may hinder the establishment of alternative arrangements (e.g., intelligence, information related to nuclear programs, or information about sensitive economic data during crises). Some institutions may also involve scale economies in the traditional, financial sense. Although the salience of this factor for international institutions is mitigated by the lack of a profit motive, on the margin, high initial financial costs will deter states with limited economic resources.<sup>12</sup>

Network effects generate incentives to pursue cooperation under a single cooperative arrangement, whereas barriers to entry affect the viability of alternatives. The presence of high network effects and high barriers to entry will be associated with the concentration of cooperative activities in a single institution. On the other hand, low network effects and low barriers to entry will tend to be associated with multiple institutions and/or the widely recognized feasibility of regional, bilateral, or private-sector alternatives.<sup>13</sup>

<sup>7</sup>For a general overview, see Tirole (1988).

<sup>8</sup>For an early survey, see Hicks (1935).

<sup>9</sup>Among others, see Williamson (1971).

<sup>10</sup>We can think of network effects (often described as network externalities) as a specific form of externality in which spillovers are related to the number of participating actors. Network effects are distinct from other types of externalities, in which there is no tendency toward universality: for example, security externalities (U.S. global alliance network improves security even for non-alliance members) or environmental externalities (regional environmental agreement also improves extra-regional conditions).

<sup>11</sup>Economists generally infer that such barriers exist when firms achieve high levels of concentration or abnormally high and sustained returns on capital (e.g., Bain 1956; Demsetz 1968, 1982; Stigler 1968).

<sup>12</sup>Barriers to entry may also be artificial, but the feasibility of artificial barriers will vary in direct proportion to natural network effects and barriers. See discussion in the online supporting information (SI), Appendix IV.

<sup>13</sup>Alternative configurations of network effects and barriers to entry are discussed in SI Appendix IV.

## Outside Options and Distributive Change

Policy area characteristics affect the viability of alternatives vis-à-vis exiting institutions. In turn, the viability of alternatives determines the attractiveness of outside options—the key intervening variable in my theory. In the context of international institutions, the use of outside options most often involves reallocating resources to external venues rather than de jure forfeiture of membership. In policy areas characterized by low network effects and low barriers to entry, it is possible for states to shift to or create alternative institutions structured more favorably, or cheaply pursue unilateral or bilateral means to achieve their ends.

This credible threat of exit (Gehlbach 2005; Hirschman 1970; Kato 1998) provides a source of leverage to redistribute influence within the existing organization. The logic is illustrated by the use of preferential trade agreements by states to secure greater bargaining leverage in the General Agreement on Tariffs and Trade/World Trade Organization (GATT/WTO) process (Davis 2009; Mansfield and Reinhardt 2003) or by U.S. threats to use force outside the Security Council to secure more favorable bargaining outcomes (Voeten 2001). I argue that attractive outside options make international organizations more malleable to *distributive change*—redistribution of national representation and influence among member states according to underlying geopolitical or economic realities.

I provide a formal model to establish this point in Appendix I (available in the online supporting information). Briefly, outside options affect bargaining outcomes by constricting the feasible bargaining range.<sup>14</sup> Comparatively speaking, equilibrium distributions of the gains from cooperation contained in small bargaining ranges (i.e., in the presence of attractive outside options) are more likely to be thrown out of equilibrium given an exogenous perturbation in underlying capabilities, such as a change in relative economic size. *Ceteris paribus*, assuming comparable shifts in underlying capabilities, institutions in policy areas with attractive outside options will experience more frequent renegotiations of bargaining outcomes and more rapidly reflect underlying shifts in relative power compared to institutions with unattractive outside options.<sup>15</sup>

It is important to note that the causal mechanism operates through the attractiveness of outside options *across*

*institutional policy areas*, not among states within an institution. Existing work has focused primarily on the use of outside options by a subset of states for the purpose of obtaining preferred policy outcomes, such as trade liberalization or UN resolutions (Mansfield and Reinhardt 2003; Voeten 2001). Instead, my theory makes predictions about institutional change based on variation in the general attractiveness of outside options across institutions. In competitive institutions, *both* dissatisfied states and status quo states have attractive outside options. Mutually attractive outside options narrow the range of acceptable bargaining outcomes for all states. This compels frequent, fluid institutional change when underlying shifts in power occur.

This leads to the following general hypothesis: Greater competition will tend to make distributional outcomes for political institutions more fluid, and outcomes will more closely approximate the distribution of underlying interests and capabilities.<sup>16</sup> The subsequent sections will develop more targeted hypotheses specific to the context of the Bretton Woods institutions.

## The IMF and World Bank: Predictions

Traditionally, it has been challenging to study international institutions comparatively due to simultaneous variation in a range of potential explanatory variables—for example, the UN Security Council and WTO not only perform distinct functions but also have completely different voting mechanisms, rules governing change, headquarter locations, and membership compositions. Since these factors are all likely to influence bargaining outcomes, it is difficult to isolate the independent effect of a single characteristic. In this article, I address this problem by exploiting common de jure features of the Bretton Woods institutions: the International Monetary Fund and the International Bank for Reconstruction and Development (IBRD) of the World Bank.<sup>17</sup> The Bretton Woods institutions facilitate cooperation in different policy areas but share many commonalities, including location of headquarters, rules concerning voting and reform, and membership. This comparison therefore allows for these factors to be held constant while isolating

<sup>14</sup>For example, see Muthoo (1999, 99–135), Voeten (2001), and Johns (2007).

<sup>15</sup>Alternatively, if an institution's rules prove to be too rigid to accommodate change, we may observe the exercise of outside options and the proliferation of effective alternatives within the same policy area.

<sup>16</sup>Note that the prediction pertains to path dependence in distributive outcomes. Even in an institution that is distributionally path dependent, other dimensions (e.g., membership, scope, principal-agent relations) may change with greater flexibility insofar as the impact on distributive outcomes is muted.

<sup>17</sup>I will use IBRD and World Bank interchangeably in the subsequent text.

the effect of policy area characteristics on institutional change.

The IMF and World Bank have virtually identical membership due to Article II, Section 1, Article B of the IBRD Articles of Agreement, which makes IMF membership a precondition for joining the World Bank. For this reason, it has been customary for states seeking membership to apply simultaneously to both institutions. Of the 187 fully overlapping current members of the IMF, 152 joined each institution on the same date, and 35 joined each institution within a matter of months due to slight variation in the timing of membership approval. Only three countries—San Marino, the Seychelles, and St. Vincent and the Grenadines—joined the World Bank with a lag exceeding a year. These are tiny island states with negligible shares of voting power and therefore are highly unlikely to have a meaningful stake in bargaining outcomes or bear on the empirical results presented below.

The IMF and World Bank also have identical *de jure* rules for the distribution of voting power. Voting power is predominantly determined according to the share of subscriptions held by each member state.<sup>18</sup> In turn, subscription shares are to broadly reflect a country's standing in the world economy, measured through indicators such as GDP, balance of payments, reserves, and the variability of current receipts. In both institutions, redistribution can occur as part of a general increase in capitalization or on an *ad hoc* basis for individual countries. Both institutions require a supermajority of 85% to approve any change in subscription shares.<sup>19</sup>

However, the *de facto* process for redistributing shares involves a highly politicized bargaining process (Boughton 2001, 849–75; Blomberg and Broz 2007; Horsefield 1969; Garritsen de Vries 1987, 511–43; Rapkin, Elston, and Strand 1997). While specific formulas are used as loose guidelines for calculating subscription shares, the formulas themselves have been the subject of much wrangling.<sup>20</sup> In fact, the Bretton Woods formulas have been adjusted *ex post facto* to produce results consistent with politically determined bargaining outcomes.<sup>21</sup> Officially, subscription shares in the IBRD are to be derivative of and parallel to those in the IMF. However, significant

discrepancies have developed over time due to divergent interstate bargaining outcomes. This discrepancy will be the focus of the empirical section of this article.

### Policy Area Competition and Outside Options for the IMF and World Bank

Although the IMF and World Bank are characterized by identical rules and membership, they facilitate cooperation in different policy areas. Broadly speaking, the organizational policy area of the World Bank may be characterized as development lending and assistance. For simplicity, I will use *development aid* in the subsequent text. Analogously, the IMF's policy area in recent years may be characterized as the maintenance of global financial stability through the prevention and resolution of financial crises and balance of payments difficulties, particularly through the use of conditional lending; for the sake of brevity, I will use *balance of payments lending* in the subsequent text.<sup>22</sup> This is an oversimplification by any measure—prior to 1971, the IMF's mandate also included managing the Bretton Woods system of fixed exchange rates. For this reason, during the 1970s, the IMF's international role was contested and less clear than the period before and after. Hence, for the purposes of empirical examination, I will focus on the subsequent period during which the IMF's role has been clearer. In addition, the *de facto* roles of the two institutions sometimes overlap, leading to criticism about “mission creep” (Einhorn 2001; Stiglitz 2002). However, the overlap is relatively small when considering the aggregate activities of each institution.<sup>23</sup>

Is there a meaningful difference in competition and outside options available to states in the policy areas of the IMF and World Bank? I will rely on two preexisting sources to classify institutions according to policy area. The IMF has published a report identifying multilateral financing arrangements that were “established to avert financing instability and/or safeguard regional integration” or due to “dissatisfaction with Fund conditionality and concerns about Fund governance” (2013, 1). Tierney et al. (2011) have similarly compiled a database of multilateral development aid institutions, including the World Bank. Based on these classifications, Table 1 presents proxies for competition among multilateral sources of balance of payments lending and development aid during

<sup>18</sup>There is also a very small fixed component distributed equally to all members of 250 voting shares to each member.

<sup>19</sup>The threshold was adjusted in the 1970s from 80% to 85% to maintain the U.S. veto (Garritsen de Vries, 1987, 524).

<sup>20</sup>The relevant quota formulas are available in IMF (2001, 57).

<sup>21</sup>For example, in 1963–1964, IMF staff revised the Bretton Woods formula by developing 15 alternatives and settling on a five-formula solution that produced a reasonable approximation to existing quota distributions (Garritsen de Vries 1987, 516).

<sup>22</sup>For an overview of the IMF's functions and history, see Vreeland (2007), particularly chapter 1.

<sup>23</sup>Detailed evidence in support of this point, based on data on budgetary allocations and the activities of each institution, is available in SI Appendix IV.

TABLE 1 Proxies for Policy Area Competition and Outside Options, 1978–2005

	Number of Institutions	Disbursement Share of Leading Institution (IMF or WB)	Herfindahl–Hirschman Index of Distributions	Proportion of IMF or WB Disbursements to U.S. Bilateral Disbursements
Balance of Payments Lending (IMF)	6	94.3%	87.9%	461%
Development Aid (World Bank)	28	31.1%	22.2%	86%

Note: See text for data sources.

the period 1978–2005. Like comparable indicators used to measure competition in private markets, these should be considered informative but not necessarily definitive, as they only account for explicit competition.<sup>24</sup> The first column reports the number of multilateral institutions facilitating cooperation in each policy area: six for balance of payments lending and 28 for development aid.

The next two columns present measures frequently used to proxy for competition in private markets: market share of the largest player and the Herfindahl–Hirschman index, calculated according to the gross disbursements of institutions in each policy area.<sup>25</sup> Many regional analogues to the World Bank are formidable operations: On a yearly basis, the Asian Development Bank and Inter-American Development Bank each disburse about 40% of the disbursements of the World Bank.<sup>26</sup> In comparison, regional analogues to the IMF either disburse funds very sporadically (the Balance of Payments Facility of the European Union) or on a much smaller relative scale (the Arab Monetary Fund and Latin American Reserve Fund). The data indicate that the IMF faces less multilateral competition and accounts for a higher share of disbursements in its policy area compared to the World Bank, resulting in a markedly higher degree of policy area concentration.

Besides multilateral organizations, the IMF and World Bank also face potential competition from bilateral sources. Unfortunately, comprehensive data on bilateral balance of payments lending are not publicly available.<sup>27</sup>

However, data are available for one important bilateral source, the United States.<sup>28</sup> These data likely exaggerate overall bilateral provision of balance of payments lending for two reasons: First, the U.S. Treasury only provides data on the size of commitments drawn upon, whereas the IMF data are funds actually disbursed; second, the United States has exercised an outsized global leadership role and financial preponderance (Simmons 2001), making it a more likely source of balance of payments lending compared to lesser states.<sup>29</sup> The fourth column of Table 1 presents the ratio of IMF disbursements to U.S. balance of payments lending disbursements and World Bank disbursements to U.S. development aid disbursements.<sup>30</sup> As the table shows, World Bank aid is exceeded by U.S. bilateral aid, and IMF disbursements have dwarfed U.S. bilateral balance of payments lending, despite the latter being overstated.

Why does institutional competition differ so starkly for the IMF and World Bank? Many of the core functions of the IMF are characterized by network effects. Because of globalization and interconnected capital markets, balance of payments crises frequently produce contagion (e.g., the Asian Financial Crisis of 1997–98 affected seemingly unrelated countries such as Korea, Russia, and Brazil). As such, there are inherent benefits associated with global surveillance and universal coverage, a point highlighted

<sup>24</sup>Evidence relating to implicit competition is consistent with the patterns observed for explicit competition. See discussion in SI Appendix IV.

<sup>25</sup>The numbers in the table are based on disbursement amounts collected directly from the annual reports of respective agencies as well as Henning (2002).

<sup>26</sup>Asian Development Bank, *ADB Annual Report* (various years); Inter-American Development Bank, *Annual Report* (various years); World Bank, *World Bank Annual Report* (various years).

<sup>27</sup>For example, the governments of Japan and the United Kingdom do not release these data as a matter of policy. I thank Daniel

McDowell for confirming this point as well as pointing me to the U.S. ESF (Exchange Stabilization Fund) data source.

<sup>28</sup>The data source is United States Department of the Treasury (2010). A detailed description of the data is available in SI Appendix IV.

<sup>29</sup>Bilateral balance of payments lending from sources aside from the U.S. appear to be generally limited. See additional discussion in SI Appendix IV.

<sup>30</sup>U.S. aid disbursements are economic aid provided by USAID. Including military aid would further inflate U.S. disbursements vis-à-vis the World Bank.

by the IMF itself.<sup>31</sup> In responding to a balance of payments crisis, perceptions of credibility can be as important as the amount of lending provided (Rubin 2004, 215). In the absence of a hegemon, individual states will find it difficult to restore confidence acting alone—hence an institution such as the IMF, which represents virtually all major creditor states in the international system (Kindleberger 2000, 179–206).

Another network effect that the IMF benefits from is its ability to provide political cover by virtue of its universality. Because the IMF represents nearly every country in the international system, it can pursue international financial rescues without implicating specific creditor governments. Balance of payments lending involves severe moral hazard and agency problems, which necessitate the frequent use of conditionality (Drazen 2002; Dreher and Vaubel 2004; Gould 2003; Haggard 1985; Haggard and Kaufman 1992; Stone 2002, 2004, 2008; Vreeland 2003; Williamson 1983). It is difficult for creditors acting within a bilateral or regional framework to sidestep the political sensitivities of conditionality. This is well illustrated by the decision of East Asian states to tie the plurality of Chiang Mai Initiative lending to IMF conditionality—the prospect of China or Japan being implicated for imposing harsh conditions on regional neighbors such as Korea was considered politically unacceptable (see SI Appendix II). Similarly, after the United States entered into bilateral currency swap arrangements during the global economic crisis of 2008, the “swap lines put the Fed in a politically uncomfortable position of having to choose which U.S. allies were good enough credit risks,” leading U.S. financial authorities to seek a transfer of future decision making over short-term foreign exchange swaps operations to the IMF (Talley 2011).

The political cover afforded by the IMF also enables countries to launder funds (Abbott and Snidal 1998), sidestepping domestic opposition to international bailouts. Like rescues of domestic financial institutions, foreign bailouts are often criticized for rewarding profligate behavior. For example, the 1995 rescue package for Mexico was opposed by 80% of the U.S. public and came under heavy congressional scrutiny (Morris and Passé-Smith 2001). The IMF not only allows countries to channel funds in a less overtly public manner, but the IMF’s universality and perceived independence can also reassure skeptical publics in creditor states that bailouts will be accompanied by tough conditions. This appears to be

a critical reason why German Chancellor Angela Merkel insisted on IMF involvement during the Eurozone Crisis. Facing a skeptical German public, Merkel argued forcefully against a Europe-only bailout plan on the grounds that IMF involvement was the only way to credibly impose austerity on profligate member states such as Greece and deter additional requests for aid (Walker, Forelle, and Blackstone (2010)).

The IMF also benefits from important entry barriers. The IMF collects sensitive data from member countries, such as available reserves. Countries are often reluctant to offer such data bilaterally or to economically proximate countries with potentially subversive motivations, placing limitations on the surveillance capabilities of alternative arrangements. For example, Japan had to reject a bilateral bailout of Thailand early in the Asian Financial Crisis because Thai authorities would only reveal crucial information regarding the status of their reserves to the IMF (Sakakibara 2000, 170). Similarly, a credible balance of payments organization needs to develop the capacity to mobilize a sizable pool of credit in the event of a major financial crisis. This will be difficult for incipient international institutions, except in cases where members are well endowed with reserve assets.

In development aid, there is a relatively limited rationale for universality or concentration of functions in a single institution. The World Bank surely benefits from the sharing and combining of expertise among member states. However, there is no need for global surveillance or coverage when implementing aid projects. Political cover is less salient for development lending: Actual motives aside, development aid is often associated with generosity and responsible global citizenship, something donors prefer to publicize rather than conceal (Botcheva and Martin 2001, 15–18). Only a subset of development lending benefits from political cover (e.g., structural adjustment lending) and even there, the need is comparatively mitigated by the fact that negotiations can occur over long time horizons outside the politically charged atmosphere of financial crises or balance of payments difficulties. Finally, barriers to entry in development aid are considerably lower than balance of payments lending. Development organizations do not need to establish high levels of credibility or the ability to mobilize resources early on: Small organizations can and do focus on small-scale projects.

These factors have led to considerable competitive pressures among development institutions. Klingbiel (1999) documents intense competition between the United Nations Development Programme (UNDP) and the World Bank in securing funds from donors and providing aid to recipients. Core resources available from

<sup>31</sup>For example, “In today’s globalized economy, where the policies of one country typically affect many other countries, international cooperation is essential. The IMF, with its near-universal membership of 186 countries, facilitates this cooperation” (IMF 2012).

donor states to the UNDP have deteriorated sharply due to “UNDP’s growing competition with the World Bank for [technical cooperation] resources” (Klingbiel 1999, 296). Similarly, Galvani and Morse (2004) point out that the UNDP has “taken on a more ‘aid business’ orientation which recognises that its [developing country] clients can move their funds elsewhere if their demands are not satisfied” (317). The widespread availability of alternatives enables member states to frequently and credibly threaten to reallocate their activities to other multilateral or bilateral agencies.<sup>32</sup>

Several caveats should be considered. Aside from multilateral and bilateral sources of funding, countries may also tap private capital markets to fund development projects and routine balance of payments needs. Private capital is inherently fungible, and access largely depends on country-specific factors (Tomz 2007). However, in relative terms, it is clear that the credibility of private sources as outside options is more limited for balance of payments lending compared to development aid. Conditional lending from the IMF is most valuable precisely when private funding dries up and reserves are depleted due to a major shock such as a financial crisis. Even for borrowers that routinely tap private capital markets and rely minimally on development aid, access can cease abruptly, as illustrated in 1997–98 and 2008. Furthermore, states that are able to fully rely on private sources for their own balance of payments needs, such as advanced industrialized countries (Blomberg and Broz 2007), still have an interest in the determination of when and how conditional lending is provided to other states, particularly in the presence of close economic, financial, or security ties (Copelovitch 2010; Dreher and Jensen 2007; Oatley and Yackee 2004; Stone 2008; Thacker 1999). The unattractiveness of bilateral and multilateral alternatives means that these countries cannot credibly threaten exit from the IMF on account of their access to private capital: They would be giving up something not easily replicable, that is, the ability to shape the terms and conditions of international conditional lending to other states. As I discuss in Appendix II in the supporting information, the difficulty of providing such lending without IMF involvement was a major constraint on Japan’s ability to secure its objectives during the Asian Financial Crisis.

The IMF also frequently relies on other sources of funding—public and private—during major international crisis episodes and hence relies on other actors for the funding of rescue programs. In theory, such instances could provide opportunities for the contributors of ad hoc funds to demand redistributive gains as a quid pro quo for providing funds. The 1998 IMF quota redistri-

bution favoring East Asia, although limited in magnitude, is consistent with such a possibility. However, both primary and secondary accounts indicate that both the World Bank and Japan, which contributed heavily to rescue packages in East Asia, found themselves largely shut out from the IMF’s decision-making process.<sup>33</sup>

Empirically, factors such as those cited above, which potentially make the IMF more subject to redistributive forces, will be associated with a bias against finding empirical results consistent with my hypotheses. For example, if states can secure greater leverage over the IMF by threatening to hold up funding during a large bailout operation, distributive outcomes in the IMF will be more fluid and more closely resemble those in the World Bank. Hence, the direction of bias is such that my empirical tests will understate, not overstate, the true difference in policy area effects between the two institutions (King, Keohane, and Verba 1994).

Table 2 summarizes the observations and empirical predictions regarding the IMF and World Bank. It is worth emphasizing that these two institutions are chosen for the purpose of causal inference: They offer *variation* in external policy area features while allowing other factors to be held constant. They do not necessarily lie at extremes in terms of policy area competition, and that is not necessary for present purposes. In this section, I have argued that, for member states, outside options vis-à-vis the IMF are generally less attractive or more limited than those vis-à-vis the World Bank. This variation in the attractiveness of outside options leads to the prediction that the World Bank will be comparatively more prone to redistributive institutional change.

## Empirical Examination: Quantitative Analysis of Subscription Shares

Subscription shares in the IMF and World Bank are the predominant determinants of voting shares.<sup>34</sup> Although most formal votes in the Bretton Woods institutions are taken by consensus, voting shares matter immensely for several reasons. Formally, voting shares determine the composition of the boards of each institution. In addition, initiatives opposed by large voting blocs generally do not make it onto the agenda, and voting shares are

<sup>33</sup>See extensive discussion in SI Appendix II.

<sup>34</sup>Voting shares are calculated by adding a small fixed component (250 shares) to subscriptions. Hence, running the analysis using voting shares produces nearly identical substantive results. The discussion in this section does not reflect the most recent quota reforms, which are in the process of implementation and fall outside of the time period analyzed.

<sup>32</sup>Examples of such threats are included in SI Appendix IV.

**TABLE 2 The IMF and World Bank: Policy Areas and Path Dependence**

	Network Effects	Barriers to Entry	Outside Options	Distributive Outcomes
Balance of Payments Lending (IMF)	<b>Higher</b> – Political cover – Laundering – Information sharing (contagion risk) – Credibility arising from broad membership	<b>Higher</b> – Sufficient credit availability in crisis – Coverage over more banks for bail-ins – Access to sensitive information – Bureaucratic expertise	Less attractive	More rigid
Development Aid (World Bank)	<b>Lower</b> – Pooling funds – Pooling information	<b>Lower</b> – Bureaucratic expertise	More attractive	More flexible

taken into account informally when weighing the opinions of member representatives.<sup>35</sup> The shares are therefore a simple and reasonable way to quantify distributional change in each institution. More informal indicators of influence are considered in SI Appendix II.

In this section, I will provide analysis based on two data sets. The first data set was obtained directly from the IMF and includes all member states as of 2004, with information on subscriptions, economic variables used as inputs in the IMF formulas, and the IMF formula outputs.<sup>36</sup> I added World Bank subscription shares for 2004 as well as subscription information from prior years from the relevant *Annual Reports*. I use these data to test the following hypothesis:

*H1:* The distribution of subscription (voting) shares in the IMF, compared to the World Bank, should be more greatly affected by the distribution of shares in previous time periods; that is, the institution will be characterized by greater path dependence in distributional outcomes. World Bank shares should more readily reflect underlying economic power as measured by economic variables, primarily GDP.

In order to test this hypothesis, I first averaged the countries' shares across the two institutions in 2004 to rank all countries by combined average voting share. I then restricted the sample to the top 40 countries. The combined average allows me to use the same set of countries for both institutions to make sure the results are not driven by the particular set of countries chosen. I restrict

the number of countries to exclude countries whose positions are so small as to make bargaining over voting shares unlikely.<sup>37</sup> As a point of reference, the IMF granted ad hoc quota increases to China, Korea, Mexico, and Turkey in 2006. In terms of rank in the data set, these countries were, respectively, number 8, 22, 17, and 35. It therefore seems reasonable to include member states in this range as countries large enough to have an independent stake in their voting share. Including all member states or using alternative cutoffs such as the top 30 or 50 states does not alter the substantive conclusions in the subsequent analysis.

Also included in the models are economic variables used by the Bretton Woods institutions to indicate a country's position in the world economy—nominal GDP (average of 2002–2004), reserves (12-month average for 2004), current receipts (average of 2000–2004), current payments (average of 2000–2004), and variability of current receipts (average of 1992–2004). Throughout, I keep the statistical models sparse, reflecting the fact that the empirical strategy holds constant the set of countries and time periods included for each institution. This effectively controls for country- or time-specific factors that have common effects across the institutions. It is still necessary to consider factors that might affect bargaining leverage asymmetrically between the two institutions, an issue I will return to in the robustness checks.

The dependent variable is the share of subscriptions in each institution in 2004. The key independent variable is share of subscriptions in 1984 (i.e., the dependent variable lagged by 20 years). I use the 20-year lag in light

<sup>35</sup>Among others, see Griffith-Jones (2002) and Woods (2008). Additional discussion of the importance of formal voting shares is available in SI Appendix IV.

<sup>36</sup>Data were obtained from IMF (2006).

<sup>37</sup>The relative voting shares of smaller states often shift due to extraneous factors such as rounding. See additional discussion in SI Appendix IV.

TABLE 3 Path Dependence in IMF and World Bank Subscription Shares (OLS)

Indep./Dep. Variables	IMF Subscription Shares (2004)	World Bank Subscription Shares (2004)	IMF Subscription Shares (2004)	World Bank Subscription Shares (2004)	IMF Subscription Shares (2004)
GDP	0.77* (0.13)	0.99* (0.12)	0.05 (0.04)	0.72* (0.15)	0.05 (0.04)
Reserves	-0.23* (0.08)	-0.19* (0.07)	0.03 (0.01)	-0.13* (0.04)	0.00 (0.02)
Current Receipts	0.44 (0.58)	0.08 (0.61)	0.32* (0.11)	-0.08 (0.46)	0.22* (0.10)
Current Payments	-0.83 (0.50)	-0.80 (0.52)	-0.25* (0.10)	-0.53 (0.41)	-0.35* (0.13)
Variability of Receipts	0.55* (0.19)	0.59* (0.19)	0.07 (0.04)	0.43* (0.16)	0.01 (0.06)
Dependent Variable (1984)			0.81* (0.04)	0.35* (0.12)	0.79* (0.05)
IMF Formula					0.28 (0.17)
Constant	-7.33* (0.59)	-6.90* (0.55)	-2.23* (0.28)	-4.18* (0.88)	-0.66 (1.69)
n	40	40	40	40	40

Note: Numbers in parentheses are Huber-White standard errors. All variables are logged. Asterisk denotes a coefficient at least two standard errors removed from zero.

of the fact that the IMF's mandate was contested in the 1970s after the collapse of the Bretton Woods System—the period thereafter offers a more relevant test of my theoretical propositions. The results of the analysis are robust to the selection of alternative lag periods such as 15 years and 25 years. My predictions about path dependence imply that World Bank shares lagged by 20 years should have less predictive power over World Bank shares in 2004 than the same for IMF shares. All variables are log transformed.<sup>38</sup>

The ordinary least squares (OLS) results are presented in Table 3. For reference, the first two specifications are run with only the economic control variables. It appears that GDP most reliably predicts subscription shares in each institution. The next two specifications include the dependent variable lagged by 20 years. The result is consistent with Hypothesis 1. For the IMF, shares from 20 years prior are a strong predictor of contemporary subscriptions—a 1 percentage point increase in 1984 shares is associated with a 0.81 percentage point increase in contemporary shares, with a 95% confidence interval from 0.73 to 0.89. After controlling for 1984 subscription shares, the key economic variable, GDP, has no relationship with contemporary IMF shares. In comparison, the 20-year lagged dependent variable is more weakly associated with contemporary World Bank shares, and even after its inclusion, GDP remains a strong predictor of World Bank shares.<sup>39</sup>

<sup>38</sup>This is to avoid potential bias caused by correlation between the variance of errors and the magnitude of predicted subscription shares.

<sup>39</sup>Alternative model specifications (corrections for compositional variables and seemingly unrelated regression) produced substantially similar results. See SI Appendix IV.

The last column of Table 3 repeats the analysis for the IMF including the IMF quota formulas as calculated by Fund staff. The results demonstrate that once historical subscriptions are controlled for, the IMF formulas have no predictive power over current subscriptions.<sup>40</sup> This result is consistent with the stylized fact that IMF quota formulas are used as loose guidelines at best.<sup>41</sup>

One alternative way to test Hypothesis 1 is to consider changes in subscriptions over time as a function of contemporaneous changes in GDP. If the World Bank more readily reflects underlying changes in economic power compared to the IMF, shifts in GDP should be more clearly associated with shifts in subscriptions. In this analysis, the dependent variable is the percentage change in subscriptions for each country from 1984 to 2004. The key independent variable of interest is the percentage change in GDP over the same time period. As controls, I include analogous percentage changes for reserves, current payments, and current receipts.<sup>42</sup> The results are presented in Table 4. Consistent with Hypothesis 1, *ceteris paribus*, there is no statistically significant relationship between changes in GDP and changes in IMF subscriptions between 1984 and 2004. On the other hand, changes in GDP are strongly associated with changes in World Bank subscriptions.

<sup>40</sup>The results for World Bank shares are analogous: The IMF formulas are not meaningful predictors of contemporary shares once the control variables are included.

<sup>41</sup>As a robustness check, I reran these regressions including the key independent variables from Blomberg and Broz (2007) and produced similar results (see SI Appendix IV).

<sup>42</sup>Variability of current receipts is dropped from the analysis, as there is too much missing data for 1984.

**TABLE 4 Percentage Changes in IMF and World Bank Subscriptions (OLS)**

Indep./Dep. Variables	% $\Delta$ IMF Subscriptions (1984–2004)	% $\Delta$ World Bank Subscriptions (1984–2004)
% $\Delta$ GDP	–0.02 (0.02)	0.46* (0.09)
% $\Delta$ Reserves	0.00 (0.00)	–0.00 (0.01)
% $\Delta$ Current Receipts	0.03 (0.09)	0.53 (0.57)
% $\Delta$ Current Payments	0.07 (0.10)	–0.90 (0.73)
Constant	1.02* (0.08)	1.78* (0.30)
n	40	40

Note: Numbers in parentheses are Huber-White standard errors. Variability of Current Receipts is dropped from the analysis due to missing data for 1984. Asterisk denotes a coefficient at least two standard errors removed from zero.

Shifts in economic power have translated into greater voting power in the World Bank over time. In the IMF, on the other hand, the shadow the past has proven remarkably resilient. Consistent with my theory, despite identical de jure rules, voting shares in the IMF have exhibited greater path dependence.

To provide an additional test of my theory, I examine a different data set, which contains time-series information on the relevant variables from 1975 to 1999.<sup>43</sup> I use these data to test the following hypothesis:

*H2:* IMF subscription shares are more autoregressive compared to World Bank shares.

On a year-by-year basis, an institution that is relatively “sticky” should experience less change in the variable of interest and therefore greater correlation across time periods. For this test, I restrict the sample to a set of large countries comparable to the previous analysis—countries that had subscriptions shares averaged across the IMF and World Bank in excess of 0.5% at any point in time.<sup>44</sup> All variables are log transformed as in the previous analyses. The models are estimated with country fixed effects.

The results are presented in Table 5. The variable of interest is the lagged dependent variable. The first two columns run the model for subscription shares, and all control variables are expressed in terms of shares of world totals. The results are consistent with Hypothesis 2. A 1 percentage point increase in lagged IMF shares is associated with a 0.70 percentage point increase in IMF shares (95% confidence interval of 0.63–0.77), whereas the same for lagged World Bank shares are only associated with a

0.10 percentage point increase in World Bank shares (95% confidence interval of 0.01–0.19).

The next two columns present similar results where subscription amounts and economic variables are entered as absolute amounts rather than shares. Again, the results support Hypothesis 2. A 1 percentage point increase in lagged IMF quotas is associated with a 0.66 percentage point increase in IMF quotas (95% confidence interval of 0.58–0.74), compared to a 0.50 percentage point increase for the same in the World Bank (95% confidence interval of 0.42–0.57). This difference is less pronounced compared to the results for shares due to the fact that share changes are often implemented by holding the absolute subscription amounts of relative losers constant while increasing amounts for winners. In this specification, GDP is positively associated with increases in World Bank subscriptions, but not IMF quotas, after controlling for the lagged dependent variable.<sup>45</sup>

One contributing factor to the results in Table 5 is the prevalence of ad hoc subscription increases outside of general reviews in the World Bank. In the time period analyzed, meaningful IMF voting share changes occurred in about 9% of country years, whereas World Bank share changes occurred in about 21% of country years.<sup>46</sup> While institutional rules allow both institutions to grant ad hoc increases in subscriptions at any time subject to approval by a supermajority, the World Bank has concluded a far greater number of such increases in the time period analyzed. A review of minutes from the IMF/World Bank annual meetings reveals that World Bank subscriptions

<sup>43</sup>Excluding the 1970s from this data set does not alter the substantive conclusions that follow. Part of this data set was collected by Brock Blomberg and Lawrence Broz, whom I thank for making their data available.

<sup>44</sup>There were 46 such countries. As in the previous analysis, the precise cutoff does not change the substantive conclusions that follow.

<sup>45</sup>Again, I performed a robustness check by running these regressions including the key independent variables from Blomberg and Broz (2007). These variables are not significant predictors of subscriptions once the lagged dependent variables are controlled for, and the substantive results are virtually identical to what is reported in Table 5.

<sup>46</sup>To eliminate trivial changes in voting shares occurring due to the entry of new members, I only count voting share changes that exceed 1% year-on-year. Additional descriptive statistics are available in SI Appendix III.

**TABLE 5 IMF and World Bank Subscriptions with Lagged Dependent Variable (OLS with Country Fixed Effects)**

Indep./Dep. Variables	IMF Subscriptions (1976–99) Shares for		World Bank Subscriptions (1976–99) Shares for	
	All Variables		All Variables	
GDP	–0.01	(0.01)	0.07	(0.05)
Reserves	–0.00	(0.01)	0.02	(0.05)
Current Receipts	0.06	(0.04)	–0.17	(0.17)
Current Payments	0.01	(0.04)	0.30	(0.18)
Variability of Receipts	–0.00	(0.01)	–0.10*	(0.05)
Dependent Variable(t–1)	0.70*	(0.04)	0.10*	(0.05)
Constant	0.32*	(0.07)	0.84	(0.29)
n	483		483	

*Note:* Numbers in parentheses are standard errors. All variables are logged. The models include country fixed effects. Asterisk denotes a coefficient at least two standard errors removed from zero.

have been increased frequently on an ad hoc basis during years where no general review of subscriptions was taking place. For example, in 1987 alone, 19 countries were granted such ad hoc increases. On the other hand, the IMF provided ad hoc increases outside of general reviews on only three occasions during the time period analyzed.<sup>47</sup> Consistent with my theoretical predictions, ad hoc share redistributions in the IMF have been fewer in number and smaller in cumulative magnitude.

## Alternative Explanations, Robustness Checks, and Causal Mechanisms

I have argued that the IMF and World Bank provide conditions approximating a quasi-experiment that allow us to isolate the effect of external factors on institutional change. One general objection to the empirical strategy outlined in this article is that although the comparison of the IMF and World Bank allows us to control for some of the most salient alternative explanations for institutional change—variation in actors, rules, time periods, and geographic location of headquarters—there may be some sources of variation aside from outside options that remain unaccounted for. This is a common limitation of quasi-experiments in the social sciences. To address this concern, I performed a battery of empirical tests to rule out several remaining sources of potential variation:

<sup>47</sup> Ad hoc increases were granted to China in 1980 (change in representation from Taiwan to People's Republic of China), Saudi Arabia in 1981 (to bolster fund liquidity and conclude borrowing arrangement), and Cambodia in 1994 (resumption of fund relations).

differences in power asymmetries across policy areas, the outsized role some countries play in international finance, the potential for bloc voting, and differences in the nature of subscription shares in the IMF and World Bank (see SI Appendix III).

The online appendix also includes several tests of the proposed causal mechanisms. In SI Appendix II, I include a detailed case study of Japan, the most important underrepresented state in the Bretton Woods institutions during the time period analyzed. The case study provides support for the proposed causal mechanisms and also illustrates how informal influence over the policy output of each institution evolved in ways consistent with voting share changes.<sup>48</sup> In addition, SI Appendix III includes an empirical test of the causal mechanism that exploits data from the immediate post–World War II period, when the aftermath of the war limited outside options vis-à-vis the World Bank. These robustness checks and additional tests all produced results consistent with the theoretical mechanisms proposed in this article.

## Conclusion

In this article, I have proposed and tested a rationalist theoretical framework that endogenizes the tendency for institutions to change. My theory predicts that international institutions that face extensive competition offer attractive outside options to member states,

<sup>48</sup> This is to address the possibility that formal and informal representation are being used as substitutes (Stone 2011). See discussion in SI Appendix II.

limiting the possibility of distributive outcomes that poorly reflect underlying state capabilities. On the other hand, path-dependent distributive outcomes are more sustainable among institutions with limited outside options. In order to test these claims, I compared outcomes in the Bretton Woods institutions, which facilitate cooperation in different policy areas but have identical membership and de jure rules governing distributive change.

Although I compared the Bretton Woods institutions in this article for empirical reasons, the theory has applicability to a much wider range of international and domestic contexts. In other work, I consider the validity of the theory through applications to the UN Security Council, Internet governance, satellite telecommunications, regional integration projects, and other foreign aid institutions. The theory could also be extended beyond the international realm to institutional arrangements characterized by analogous features at the domestic level, such as ministerial appointments in developing countries, parliamentary committees, and other types of institutional arrangements potentially subject to contestation. The following conjecture follows from the theory outlined here: *Ceteris paribus*, institutions that primarily pertain to activities that are easily replicable by other institutions or actors will be more prone to distributional fluidity among constituents, versus those that engage heavily in activities subject to few outside options.

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## Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's website:

**Appendix I:** Formal Model

**Appendix II:** Japan in the Bretton Woods Institutions (An Examination of Mechanisms and Informal Influence over Outcomes)

**Appendix III:** Alternative Explanations, Robustness Checks and Descriptive Statistics

**Appendix IV:** Supplementary and Supportive Materials (Additional Discussion of Footnotes)